Not Guilty by Reason of Insanity of Murder: Clinical and Neuropsychological Characteristics

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We examined archivally clinical status, neuropsychological functioning, and perpetrator-victim relationships of 28 adult patients who had committed homicide and had been subsequently involuntarily committed to a forensic hospital. We divided patients into two groups: (1) not guilty by reason of insanity (NGRI) acquittees (n = 13) and (2) convicted murderers (n = 15). In comparison with convicted murderers, NGRI acquittees were more likely to be seen as psychotic at the time of the index offense and also were more likely to have killed blood relatives, especially a parent. By contrast, convicted murderers were more likely to have killed a significant other, mainly a spouse or lover. At the time of the index offense, substance abuse was more likely to have occurred in the convicted murderers than in the NGRI acquittees. NGRI acquittees and convicted murderers did not differ on neuropsychological tests, with both groups generally scoring within normal limits on all tests. Taken together, these results suggested that NGRI murderers may be driven by acute psychosis directed toward blood relatives and occurring against a backdrop of relatively preserved neuropsychological functioning.

Violent criminal acts precipitated by active mental illness occur rarely,[1,2] but nonetheless generate considerable, often heated philosophical, moral, and legal debate about how such acts should be dealt with socially. In the relatively rare instance of a judicial finding of not guilty by reason of insanity (NGRI), a mentally ill person is absolved of criminal wrongdoing for acts thought to be a direct consequence of a disordered mind. A person adjudicated as NGRI is typically committed to a state psychiatric facility until deemed no longer dangerous by reason of mental illness. The distribution of crimes varies among NGRI acquittees requiring continued hospitalization. In an eight-state study, Callahan *et al.*[3] reported that 15 percent of hospitalized insanity acquittees committed homicide and another 38

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percent had criminal charges of physical assault. More recently, Shah *et al.*[4] reported that 40 percent of NGRI acquittees in a regional New Jersey state hospital had been charged with murder or attempted murder. Similarly, a study of New York State NGRI acquittees found that 33 percent committed homicide or attempted homicide, 19 percent aggravated assault, and 16 percent arson.[5]

Perhaps no NGRI defense will inflame popular and scholarly debate more than that which occurs when a mentally ill person commits homicide. The debate is as old as antiquity, capturing the interests of moral philosophers no less than Aristotle who emphasized the importance of distinguishing between "people of weak will who do wrong against their real wishes and intentions, and vicious people who do wrong contentedly and with conviction"[6] (p. 59). No act is arguably more vicious, tragic, and evil than that of homicide. A NGRI finding in a case of murder ultimately distinguishes between those whose actions social policy deems a product of a "weak will," and hence not morally blameworthy, from those who acted primarily with malice or evil.[7] Because of the controversy that surrounds such cases and because of the legal statutes involved, a NGRI defense for the charge of murder may therefore represent both the best and worst examples of clinical science providing information for the courts in matters of culpability and blameworthiness. In the best scenario, boundaries between moral and clinical judgments are rigorously upheld, and in the worst scenarios, the distinctions between what may be "bad" and what may be "mad" are lost.[7, 8]

The more serious the possible criminal penalty, the greater the legal incentive for pursuing insanity acquittal. Since the mid-19th century until the last several decades, insanity acquittals often brought lifetime commitments to institutions for the criminally insane. Therefore, few crimes other than capital defenses gave a defendant an indisputable legal interest in an insanity plea.[9] Murder was preeminent among those offenses. Despite their potential legal interest in them, few homicidal perpetrators receive insanity acquittals. The reasons may be multiple.

Mentally ill persons account for a very small number of total homicides[10–12]; the correlation between mental illness and violence appears modest[2]; and homicide account for a minute percentage of all offenses committed by mentally disordered persons. Further, since in recent decades release to the community may or will eventually follow an insanity acquittal, judges and juries may view a judgment of insanity with greater reluctance for the most serious offenses. Thus, Janofsky *et al.*[13] found that the seriousness of the charge, together with diagnosis and expert opinion, differentiated those eventually found NGRI. Their sample of 143 defendants who pled insanity found none charged with rape or murder who eventually received such a verdict (NGRI).

There are no national data on insanity acquittals. The best existing research has disclosed considerable variation in the rate of insanity acquittals.[14, 15] Perhaps because of the small numbers involved, the reported variations in homicide insan-

ity acquittals have been considerable. In a study of all Massachusetts insanity acquittals during the years 1978, 1980, and 1982, Phillips and Hornik[16] found only eight subjects, representing just 4.8 percent of all insanity acquittees, had been acquitted of murder. As of this study, Massachusetts ranked lowest among all those states in which the incidence of NGRI findings in murder cases had been studied, and in the intervening years, the number of insanity acquittees has continued to be very small.

Because of the relative infrequency of successful insanity defenses to murder, there has been limited systematic empirical research directed toward distinguishing characteristics of NGRI murderers. In a comparison study of 50 homicide defendants acquitted by reason of insanity and 50 defendants evaluated for criminal responsibility and deemed responsible, Packer[17] found that female sex, white race, fewer felony convictions, at least one prior hospitalization, a diagnosis of psychosis, and killing of a parent or child were all significantly over-represented in the NGRI group, while spousal or stranger victims were under-represented in that group. The latter finding appears to contrast with more recent reports of Steadman and colleagues[15] who found that in relation to all types of assault, type of victim had little relation to the success of an insanity plea. In a recent study performed in Quebec, Beaudoin, *et al.*[18] compared 14 schizophrenic NGRI murderers with 12 schizophrenic patients convicted of murder and 15 convicted murderers with no diagnosed mental disorder on a variety of clinical variables, including substance abuse, history of mental illness, and intelligence. Among the many findings was that, in comparison with the two contrast groups, NGRI murders occurred during the acute phases of schizophrenia and were less likely to be related to substance abuse at the time of the crime.

We have previously examined homicides in relation to age, psychotic symptoms, victim-perpetrator relationships, and neuropsychological characteristics, but not in relation to legal defense and outcome.[19, 20] These findings indicated that, in comparison with less violent psychotic patients, psychotic murderers scored higher on a variety of neuropsychological tests and were more likely to have imposter delusions and delusions incorporating specific personal targets. Psychotic homicides also involved a remarkably high incidence of blood relatives as victims. Yet, to our knowledge, no study has yet to examine these variables simultaneously, namely clinical characteristics, neuropsychological functioning, and perpetrator-victim relationships in NGRI murderers and in psychiatrically involved (but not necessarily psychotic), convicted murderers. We therefore examine these variables in two groups of patients committed to Bridgewater State Hospital in Bridgewater, Massachusetts, the state's only secure psychiatric facility. For a NGRI finding in Massachusetts, one of a minority of states that did not revise the conditions of its insanity defense in the aftermath of the Hinckley verdict,[15] the burden of proof remains on the Commonwealth, and the standard of proof is beyond a reasonable doubt. In *Common-*

wealth v. McHoul, 226 NE 2d 556 (1967), Massachusetts adopted the American Law Institute (ALI) Model Penal Code[21] definition of insanity: "An individual is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate the criminality (wrongfulness) of his conduct or to conform his conduct to the requirements of law" (p. 557).[21]

Method

Sample We used an archival design[19, 20] to examine hospital records of approximately 310 cases, all males committed to Bridgewater State Hospital in Massachusetts, the state's only secure forensic psychiatric facility, and referred for neuropsychological evaluations between 1987 and 1995. Records included forensic psychiatric evaluations, neuropsychological evaluations and test scores, and police reports where available. From the sample of 310 referrals, 17 patients had been adjudicated as NGRI on the charge of murder. Four of the 17 patients were not included; 3 subjects completed only one or two of the neuropsychological tests, and 1 subject scored in the mentally retarded range on formal intelligence testing. We therefore examined the records of 13 patients adjudicated as NGRI on the charge of murder, ranging between the ages of 20 and 52 years old at the time of the offense, with IQs above 70, and who had been formally evaluated on neuropsychological tests. Eleven of the 13 subjects had been acquitted NGRI of murder between 1985 and 1990 and 2 subjects in the 1970s.

From the same sample of 310 patients referred for neuropsychological evaluations between 1987 and 1995, we selected a contrast group of 15 patients, all of whom were eventually convicted of murder, had IQ scores above 70, and were similar in age to the NGRI murderers at the time of the index offense. For contrast subjects, we selected only those patients who had been referred for neuropsychological testing, had been either charged with or convicted of murder, and had undergone complete neuropsychological testing. Thus, the contrast subjects did not represent a random sample of persons referred for neuropsychological testing, but rather were selected on the basis of age, crime, and completion of a test battery.

Rating Scales To minimize subjectivity in ratings, we used a simple dichotomy (yes/no) to rate records on the basis of presence of a (1) psychotic disorder at the time of the murder, as defined by a DSM-III-R diagnosis of schizophrenia, delusional disorder, psychotic disorder not otherwise specified, major depressive disorder with psychotic features, or a bipolar disorder with psychotic features;[22] and (2) substance abuse at the time of the murder, as defined by a documented DSM-III-R diagnosis of psychoactive substance abuse or dependence,[22] or records describing the perpetrator as intoxicated and/or under the influence of illicit drugs. In addition, we rated perpetrator-victim relationships in terms of stranger, significant other (spouse or lover), and blood relative, including specific blood relationship (child or parent) and unrelated child.

Neuropsychological Measures Test data included standardized measures of (1) intelligence, as assessed by the Wechsler Adult Intelligence Scale-Revised (WAIS-R), which provides intelligence quotients (i.e., Full Scale IQ; Verbal IQ; and Performance IQ) derived from 11 subscale scores;[23] (2) memory, as assessed by the Wechsler Memory Scale-Revised (WMS-R),[24] which provides memory quotients or indexes (i.e., General Memory Index, Verbal Memory Index, Visual Memory Index) derived from 7 subscales scores; (3) attention and concentration, as assessed by the Attention and Concentration Index of the WMS-R derived from 5 subscales scores[24] and by the Trail Making Test;[25] (4) problem solving and executive functions, as assessed by the Wisconsin Card Sorting Test (WCST);[26] and (5) academic abilities of reading, spelling, and arithmetic as assessed by the Wide Range Achievement Test-Revised (WRAT-R).[27]

Results

Both groups did not differ significantly in age at the time of the murder, with a mean age of 35.2 years for NGRI and 34.1 years for convicted murderers. Both groups also had similar levels of education, with a mean level of education of 13.3 years for NGRI and 13.1 years for convicted murderers. Both groups had identical total numbers of victims: 17 deaths for the 13 NGRI murderers and 17 deaths for the 15 convicted murderers. For NGRI murderers, 23 percent involved multiple deaths compared with 13% for the convicted murderers.

As would be predicted by the Massachusetts legal standard, in relation to convicted murderers, NGRI murderers were significantly more likely to be described as psychotic around the time of the crime ($\chi^2 = 20.53$, $df = 1$, $p < .0001$). For NGRI murderers, records described all but one subject (92%) as psychotic at the time of the crime. By contrast, records described only 1 of the 15 convicted murderers (7%) as psychotic at the time of the crime. The groups also differed significantly for substance abuse at the time of the crime. Records revealed that none of the NGRI murderers but 27 percent of the convicted murderers abused substances at the time of the crime ($\chi^2 = 4.04$, $df = 1$, $p < .05$).

Table 1
Characteristics of Perpetrator-Victim Relationships

	NGRI (n = 13)		Convicted (n = 15)	
	No.	%	No.	%
Perpetrator				
Psychotic	12	92	1	7**
Substance abuse	0	0	4	27*
Victim				
Parents	8	62	0	0**
Significant other	3	23	9	60*
Related children	2	15	1	7
Unrelated children	0	0	2	13
Stranger	1	8	2	13

*$p < .05$.
**$p < .01$.

Table 1 presents characteristics of perpetrator-victim relationships for both groups. As in Packer's[17] data, chi-square analysis revealed a significantly higher incidence of blood relatives as victims for NGRI murderers than for convicted murderers ($\chi^2 = 11.87$, $df = 1$, $p < .001$). For

Table 2
Neuropsychological Test Scores of NGRI Subjects and Convicted Murderers

	NGRI (n = 13)	Convicted (n = 15)
Wechsler Adult Intelligence Scale-Revised		
Full Scale IQ	100.1 ± 12.8	97.6 ± 13.2
Verbal IQ	103.8 ± 13.1	97.2 ± 15.8
Performance IQ	95.1 ± 10.2	98.4 ± 13.4
Wechsler Memory Scale-Revised		
Verbal Memory Index	98.2 ± 13.5	90.4 ± 16.6
Visual Memory Index	101.9 ± 12.1	96.1 ± 14.6
Attention/Concentration Index	104.5 ± 14.4	94.8 ± 18.1
Wisconsin Card Sorting Test		
Categories achieved	4.8 ± 1.5	4.2 ± 1.7
Trail Making Test[a]		
Trails A	37.7 ± 3.0	41.4 ± 6.4
Trails B	89.4 ± 33.2	97.7 ± 60
Wide Range Achievement Test-Revised		
Reading	103.6 ± 11.5	94.4 ± 14.3
Spelling	103.0 ± 9.8	89.3 ± 15.2*
Arithmetic	103.1 ± 15.7	90.4 ± 11.2*

[a]Seconds.
*$p < .05$.

NGRI murderers, 69 percent involved blood relatives as victims in comparison to 7 percent for convicted murderers. For NGRI murderers, 62 percent involved parents, whereas no convicted murderer had killed a parent ($\chi^2 = 12.9$, $df = 1$, $p < .001$). Groups also differed significantly in percentages of victims who were significant others, mainly a spouse or a lover. For convicted murderers, 60 percent of the crimes involved a significant other in comparison to 23 percent for NGRI murderer ($\chi^2 = 3.88$, $df = 1$, $p < .05$). The groups did not differ significantly in percentages of either related or unrelated children as victims. Two of the 13 NGRI murderers (15%) and 1 of the 15 convicted murderers (7%) involved related children as victims. None of the NGRI murderers involved unrelated children, whereas 2 of the 15 convicted murderer (13%) involved unrelated children.

Table 2 presents neuropsychological test scores for both groups. On standardized tests of intelligence, both groups scored in the average range of abilities. NGRI and convicted murderers did not differ significantly on Full Scale IQ, Verbal IQ, or Performance IQ. Mean Full Scale IQ was 100.1 for NGRI murderers and 97.5 for convicted murderers. Mean Verbal IQ was 103.8 for NGRI and 97.2 for convicted murderers, and mean Performance IQ was 95.1 for NGRI murder-

ers and 98.3 for convicted murderers. NGRI and convicted murderers also did not differ significantly on standardized tests of memory, attention and concentration, or executive abilities. By contrast, on standardized tests of academic abilities, NGRI murderers scored significantly higher on standardized academic tests of spelling ($t = 2.57$, $df = 23$, $p < .05$) and written arithmetic ($t = 2.36$, $df = 23$, $p < .05$).

Discussion

The current results indicate that homicide perpetrators likely to receive an insanity acquittal may be distinguished from psychiatrically involved, convicted murderers on a number of variables involving both mental status at the time of the offense and the objective characteristics of the homicide. As expected, all but one of the NGRI murderers showed clear evidence of psychosis around the time of the murder, in comparison to only 1 of the 15 convicted murderers. In this sense, NGRI murderers in this study may very well represent a legitimate and reasonable representative sample of clinically valid NGRI murderers. In addition, consistent with previous findings,[18] substance abuse at the time of the index offense was less likely to be a factor in NGRI murders. The groups also differed dramatically in terms of the nature of victim-perpetrator relationships. NGRI murderers were more likely to kill blood relatives, especially parents, whereas convicted murderers were more likely to kill a significant other, such as a lover or a spouse. In contrast to these rather robust group differences on these variables, NGRI murderers and convicted murderers did not differ on most neuropsychological tests.

NGRI murderers thus showed a similar profile to that of psychotic homicides, but a very different profile from that of psychiatrically involved, convicted murderers. Similar to our findings regarding psychotic homicides[19, 20] and the findings of Packer,[17] NGRI murderers are generally psychotic and may kill a blood relative while in the throes of an acute psychotic episode. The nature of the psychotic episode and the selection of the victim may very well be inextricably linked. For psychotic acts of lethal or near lethal violence, personal victims are often specifically incorporated into the psychotic symptoms experienced at the time of the crime, as in the case of the psychotic perpetrator with impostor delusions attacking a victim believed to have been replaced by an impostor.[20] In the current study, for example, two of the NGRI psychotic murderers killed parents whom they believed had been replaced by impostors. In another case, a NGRI psychotic murderer with fixed, religious delusions killed his father in response to a divine message he reported experiencing prior to committing the murder. In this case, the NGRI murderer killed his father, whom he loved, as an example of his devotion to a higher being.

For NGRI homicide perpetrators, records often describe exceptionally personal, intimate experiences of what may be viewed as some type of alien force directly controlling their actions or the actions of others. The NGRI murderer may experience these alien forces as having their own autonomous purposes.

These forces may command the NGRI murderer to attack and kill a personal target, perhaps because of religious delusions, as in the case of the son killing his father in response to a perceived divine message. In other instances, these forces may be experienced as imminent threats to life and are believed to originate from a particular personal target whom the NGRI murderer kills in an apparent act of psychotic self-defense. Similar types of paranoid psychotic experiences may be predictive of violent acts in mentally ill persons living in the community.[28]

For NGRI murderers, these experiences may be more intense, elaborate, and systematized than those associated with nonlethal violence in mentally ill persons living in the community. In addition, for NGRI murderers, these experiences may occur against a backdrop of relatively intact cognitive abilities. In the current sample, neuropsychological test scores did not distinguish NGRI murderers, all but one of whom had clear histories of psychosis, from psychiatrically involved, convicted murderers, all but one of whom had no history of psychosis. Likewise, the psychotic NGRI murderers generally scored higher on neuropsychological tests than patients with chronic schizophrenia.[29] Overall, these data indicate that NGRI murderers may represent a distinct group of psychotic patients, characterized by malignant paranoid delusions yet relatively preserved cognitive abilities. These relatively intact cognitive abilities may provide the wherewithal and organizational skills to act upon psychotic perceptions and beliefs.[20, 30]

The current study did not examine specific symptomology but did suggest that command hallucinations and paranoid delusions are likely to be present in NGRI murders. While clearly not unique to any one diagnosis, these symptoms often do characterize paranoid schizophrenia, which may be associated with increased homicide rates in relation to both control samples and mentally ill offenders.[31–33] As an example, in relation to a contrast group of hospitalized psychiatric patients, Shah *et al.*[4] reported a significantly higher incidence of paranoid schizophrenia in NGRI acquittees, 40 percent of whom had been charged with either homicide or attempted homicide. The relatively intact neuropsychological functioning of the NGRI murderers of the current study would also be consistent with paranoid schizophrenia, which, unlike other types of schizophrenia, may not substantially compromise cognitive functioning.[34] However, NGRI murderers may also show other symptoms, which may not be entirely consistent with paranoid schizophrenia. In this regard, some studies have suggested that violence in mentally ill persons may be linked to both paranoid delusions and a mood disturbance.[35, 36] Future studies will clearly need to examine both sets of symptoms, affective and psychotic, in persons adjudicated as NGRI of murder.

The dynamics of NGRI murders may be best understood by examining the interaction between the perpetrator and the innocent victim. In the current study, the characteristics of the perpetrator-victim relationships separated NGRI murderers from convicted murders to a remarkable

degree. From these and other similar data, interactive models may eventually be developed that will take into account how certain psychotic symptoms are experienced and how these uniquely personal experiences influence victim selection, motives, and ultimate homicidal actions. For NGRI murders, a victim may have symbolic and psychotic significance only to the perpetrator. The motives of the psychotic murder cannot be explained simply in terms of anger, rage, or jealousy, but rather only by careful examination of symptoms, experiences, and consequent actions.

An interactive model may also help distinguish NGRI murder from other types of unusual murders, which often raise insanity defenses. Consider the cases of those who murder in the service of extreme political ideology. In these instances, the perpetrator is not psychotic, but may represent an aggrieved ideologue driven by fanatical beliefs that are shared by other like-minded members of the political group. In that regard, the perpetrator may be viewed not so much as delusional but rather as hateful and prejudiced. Targets such as persons representing an opposing political viewpoint are selected not in terms of psychotic delusions but exclusively in terms of political significance. These perpetrators will likely crave public attention. Likewise, NGRI murderers who kill blood relatives, especially parents, may also be distinguished from other murderers who kill their parents. These latter persons may be younger, as in the case of the antisocial teenager, are not psychotic, and are arguably driven by rational or at least nonpsychotic motives, such as money, defiance, anger, or revenge.

The validity of such an interactive model and its accompanying implications awaits further empirical studies. Suffice it is to say that the current empirical findings indicate that NGRI murderers may represent a distinct if not unique group of mentally ill patients. For example, inpatient violence among mentally ill patients has been related to thought disorganization, agitation, and neuropsychological impairment.[37, 38] By contrast, highly organized, systematized, paranoid delusions, coupled with relatively preserved neuropsychological functioning, may be related to lethal or near lethal acts of violence in mentally ill persons, including those adjudicated as NGRI for murder. Thus, the nature of the mental illness, the environmental context of the violence, and the level of the criminality all need to be considered in any heuristic model that seeks to explain why some mentally ill persons become violent, engage in felonious crimes, or commit homicide (see also Lapierre *et al.*).[39]

In summary, perhaps no criminal defense generates more controversy than that of the NGRI defense for the charge of murder. The aforementioned distinguishing characteristics of successful NGRI defenses may help to provide some perspective to this heated controversy of how a mentally ill person may be adjudicated not criminally responsible for murder. Future studies will likely establish additional distinguishing characteristics of NGRI murders. Epidemiological studies are also needed to help to understand these current findings, which

were derived from objective but retrospective analyses of cases selected on the basis of clinical criteria.

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